

THE IMPACT OF SERVICE QUALITY DIMENSIONS AND SATISFACTION AMONG PRIVATE HIGHER VOCATIONAL COLLEGE STUDENTS IN CHENGDU

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Abstract: China is experiencing competition among higher vocational schools and institutions due to the continuous decline in the number of births. Ensuring the quality of higher education services is pertinent because it reflects the extent to which higher education services meet the needs of students as consumers and is also a specific measure of student satisfaction with vocational education. The objective of this study is to examine the impact of the service quality dimension on satisfaction among private higher vocational college students in Chengdu, China. A quantitative research method is used in this study and a survey instrument was developed mainly aimed at identifying the impacts between service dimension and student satisfaction. The selection of the respondents' group was made through simple random sampling. The questionnaires were distributed to 379 respondents current students from private higher vocational colleges in Chengdu, Sichuan Province, between January to April of 2024. A total of 379 respondents responded to the distributed questionnaires. The coefficients indicate that all service quality dimensions comprising reliability, responsiveness, assurance, empathy and tangible significantly impact student satisfaction and support all hypotheses of this study. The conclusions drawn from the findings demonstrate that the service quality dimensions play a key role in influencing student satisfaction in private higher vocational colleges in Chengdu. The findings provide valuable insights for educational administrators to improve service quality and student satisfaction, ultimately contributing to the success of the colleges.

Keywords: Service quality, Student satisfaction, Vocational education

1. Introduction

The development and growth of every economy to a large extent depends on the contributions of higher education. Universities are responsible for the generation and dissemination of knowledge for the socio-economic benefits of a country. Good service quality is vital for higher education institutions to remain competitive and growing. Higher educational institutions have seen the need to place a greater value on improving their activities to meet students' perceptions and expectations. Hence, student satisfaction is vital in determining service quality at higher educational institutions (Twum, & Peprah, 2020). Higher educational institutions are required to play a significant role in assessing service quality to ascertain students' satisfaction. Student satisfaction measures the perception and expectations of a student relating to a service provided by the school or faculty, and the university at large.

As an important component of higher education, vocational education has undergone leapfrog development since its inception. In the context of the socialist modernisation process, driven by the central government's request to vigorously develop vocational education, and encouraged by a series of policies and measures by the Ministry of Education, vocational education has developed rapidly and its important position is increasingly materialised (Shi, 2024). Contrasting with the traditional university training model, vocational education has differences in the training models and methods of students. In comparison, it should pay more attention to the cultivation of students' skills. From the experience of developed countries, vocational education has provided abundant talents for the development of industries, and for countries that were still labor-intensive, vocational education was more capable of cultivating skilled talent that could meet the enrolment needs of various industries than undergraduate education. Compared with undergraduate education, vocational education has its uniqueness (Hu, 2024).

Student satisfaction is consumers' evaluation of products and the power exercised by consumers. Vocational education services are the products of vocational education, and students are the consumers of this product. The reason why students consume is that they have needs, which are also composed of multiple needs. The quality of higher education services reflects the extent to which higher education services meet the needs of students as consumers and is also a specific measure of student satisfaction with vocational education. Since the introduction of satisfaction assessment in vocational education, how to scientifically and accurately evaluate service quality has become the focus of attention for many scholars (Wu, 2023).

2. Research Problem

At present, China's higher vocational education is affected by the continuous decline in the number of births and the increasing number of higher vocational schools, resulting in increasingly severe pressure on students and competition among higher vocational schools and institutions. There is fierce competition between various higher vocational schools and institutions. According to data released by the National Bureau of Statistics of China in 2023, at the end of 2023, the national population was 1,409.67 million, while the number of births throughout the year was 9.02 million, and the number of deaths was 11.1 million. As the number of births is less than the number of deaths, China's total population will decrease by 2.08 million people compared with 2022. During the two-year period from 2022 to 2023, China's total population will continue to decline. The main reason for this result is the decrease in the number of births. The decrease in China's birth population will directly lead to the subsequent decrease in the number and scale of students, which will have an impact on the survival and development of the education industry.

Therefore, the field of higher vocational college especially in Chengdu is currently facing unprecedented competition and enrollment pressure. In this context, maximising student satisfaction has become a major concern for many universities and colleges, no matter where they are located considering that student satisfaction is now often used as an indicator of the performance of higher education institutions (Wang, 2024). At the same time, service quality and student satisfaction play an important role in the development of higher

vocational colleges. Only by continuously improving service quality and student satisfaction can higher vocational colleges develop continuously, stably, and healthily (Li, 2022). It can be seen that how to improve student satisfaction and enhance the competitiveness of higher vocational colleges is the focus of higher vocational education in the country and even globally.

In general, students are the main audience of higher vocational education, hence they will be affected by various factors while receiving education from higher vocational schools or institutions, and ultimately generate cognition and satisfaction. In higher vocational education, student satisfaction is crucial for the growth and development of schools or institutions and students. Students are the most important stakeholders of any educational institution. In addition to student progress and placement, one of the main indicators of university progress is student satisfaction (Anita & Meghana, 2022). If higher vocational schools want to progress and develop and get more students, they need to rely on effective marketing. One of the effective marketing strategies for higher education institutions is word-of-mouth communication, which relies heavily on quality and customer satisfaction (Hartono, 2017). Student satisfaction will affect students' recognition of higher vocational colleges or institutions, thereby affecting the reputation of a higher vocational school in the process of communication, and finally affecting its competitiveness (Juan & Nair, 2022). Universities are acknowledging that students are also customers and that outstanding customer experiences are required across the students' lifecycle (Hanover Research, 2015).

This paper focuses on the quality of education services and student satisfaction with private higher vocational colleges in Chengdu in ensuring the objective need of students to fully exercise their rights in the process of obtaining and enjoying education. The objective of this study is to examine the impact of the service quality dimension of student satisfaction at a private higher vocational college in Chengdu.

3. Literature Review

Since the Second World War, with the impact of economic globalisation, the intensification of talent competition, and the acceleration of the popularity of higher education, many countries have made decisions to improve the quality and status of higher education services. Scholars and experts who study the quality of foreign higher education services believe that higher education services are one of the basic outputs of higher education. Kerlin (2021) pointed out that due to the increase in numbers, competition among educational institutions has become increasingly fierce, and in a highly competitive market, customer satisfaction with services is crucial. Mostly, people believe that higher education should be committed to "meeting consumers' wishes and needs" and the service quality concept is gradually accepted by people. In China, Liu Junxue (2017) pointed out that the basic output of education is educational services, and the quality of higher education is the quality of education services, which depends on the comparison between the expectations of education demand entities for education services and the actual perceived level of education services. Based on Cao, (2024) the main evaluators of the quality of education services, and the perception of educational service quality by learners is not only related to the results, but also involves the process of educational services.

3.1 Service Quality Evaluation and Satisfaction Model

The quality of education is measured by the ultimate goals and training objectives of the institution. Various vocational schools consider that improving service quality requires self-improvement measures (Lu, 2023). Based on the analysis of basic factors, it should include target quality, process quality, system quality, facility quality, and product quality. In the late 1980s, for the first time foreign economic experts A. Parasuraman et al. (1988) proposed a service quality evaluation model for customer-oriented evaluation of service quality for the service industry. It focuses on the service measurement scale and the PZB service quality gap model. The service scale includes five dimensions comprising tangibility, reliability, responsiveness, supportability, and empathy. Figure 1 demonstrates the model, while Table 1 outlines the dimensions of service quality.

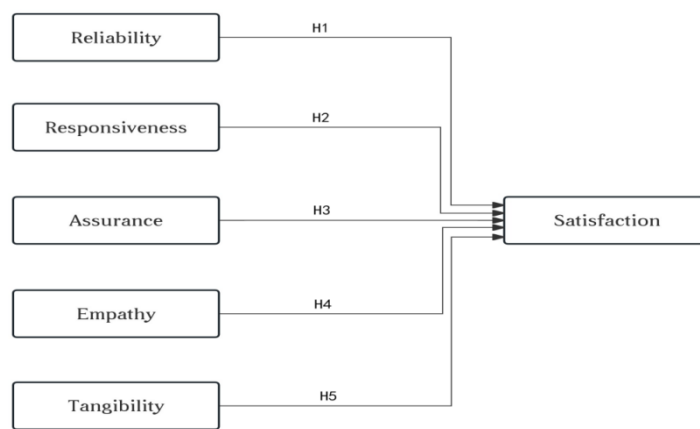


Figure 1. Conceptual framework of service quality evaluation and satisfaction model

Table 1. Parasuraman et al. (1988) dimensions of service quality

Variables	Definition	Attributes (confirmed by Ziethaml et al. (2003))
Tangibles	The appearance of physical facilities, equipment, and personnel.	It provides a physical representation of the service that clients/students use to evaluate service quality. It enhances the institution’s image and provides customer continuity.
Reliability	The ability to perform the promised services accurately, and dependably.	It helps retain customers. It ensures clients/students’ willingness to re-do business with the organisations.
Responsiveness	Willingness to assist students and to provide prompt services.	It focuses on attentiveness and promptness in dealing with clients/ students’ requests, questions, complaints and problems.
Assurance	Knowledge and courtesy of employees and their ability to convey trust and confidence.	It seeks to ensure that providers courteously deliver service. It is expected to attract the needed trust and confidence from their customers.
Empathy	The ability to convey trust and confidence to customers.	It is about treating clients as special and unique individuals. It connotes a positive impression to clients.

Source:Parasuraman et al. (1988)

3.1 Tangibility and Student Satisfaction

Tangibility refers to the fixed assets of a school, including office space, service equipment, hardware facilities, etc., which provide students with essential tangible assets for teaching. It provides a physical representation of the service that clients or students use to evaluate service quality. It enhances the institution's image and provides customer continuity. Research conducted by Twum and Peprah (2020), shows that tangibility and satisfaction are significant. Therefore, the present study proposes a hypothesis as follows:

H1: Tangibility has an impact on student satisfaction in a private higher vocational college.

3.2 Reliability and Student Satisfaction

Reliability refers to the ability to fulfill promises accurately and timely during the service process while ensuring the continuity, and stability of the service (Lan, 2024). In the field of higher vocational education, students' trust in schools depends on the reliability of the school. A reliable school should have a stable service supply and an efficient service process to ensure that every step from receiving services to completing services is properly handled. In addition, schools also need to establish a sound management system and provide timely feedback on students' needs and opinions to continuously improve service quality. Therefore, the next proposed hypothesis is as follows:

H2: Reliability has an impact on student satisfaction in a private higher vocational college.

3.3 Responsiveness and Student Satisfaction

Responsiveness refers to the ability of schools to respond promptly to student needs or issues and actively solve them. A responsive school can give students a sense of attention and importance, enhancing their trust and satisfaction with the school (Chang, 2024). To improve responsiveness, schools should establish sound communication channels, respond to student inquiries, and complaints as soon as possible, and promptly resolve issues. In addition, schools can improve team response speed, and efficiency through training in communication and coordination skills. Hence, the next hypothesis is as follows;

H3: Responsiveness has an impact on student satisfaction in a private higher vocational college.

3.4 Assurance and Student Satisfaction

Assurance refers to the ability of schools to provide high-quality, and high-value services and management in the process of serving students, and meeting their expectations and needs (Sun & Zhao, 2024). A guaranteed school should possess professional skills and knowledge, and be able to provide students with accurate information and targeted solutions. At the same time, schools should continuously enhance their innovation ability and

competitiveness, and launch differentiated teaching services to meet the needs and preferences of different students. Hence, hypothesis 4 is proposed as follows;

H4: Assurance has an impact on student satisfaction in a private higher vocational college.

3.5 Empathy and Student Satisfaction

Empathy refers to the ability of schools to understand and care for the needs and feelings of students in the process of teaching services, and to express them through behavior and language (Wu, 2024). A school with empathy can win the trust and favor of students and establish long-term cooperative relationships. In addition, schools can establish a care mechanism to regularly monitor the needs and opinions of students, provide personalised services, and make students feel valued and cared for. Given this, the next hypothesis is proposed as follows,

H5: Empathy has an impact on student satisfaction in a private higher vocational college.

4. Methodology

The present study utilises a quantitative research method approach. Kerlinger (2022) noted that the descriptive study design has two main purposes where the first one is to find the answers to these questions and secondly, to control the variance. According to positivist scholars, the social world is made up of concrete, immutable reality that can be objectively measured. The positivist approach, which prioritised systematic observation, standardised assessments, experiments, survey data, and statistical analysis, predominated in social and educational research (Rahman, 2020).

The survey instrument is mainly aimed at identifying the impacts between service dimension, and student satisfaction. The selection of the respondents' group was made through simple random sampling, and questionnaires were distributed to 379 current students from a private higher vocational college in Chengdu, Sichuan Province. All questionnaires were found to be usable for the analysis, hence the study obtained a 100% of response rate. The questionnaire consists of four parts and a 5-point Likert scale that has been employed in several earlier research to measure satisfaction was employed and used to measure all the variables (Rajat, et al., 2018). Thus, it is considered a valid and appropriate measurement. The respondents of this study were requested to indicate their level of perceptions on the Likert Scale, ranging from strongly disagree (1) to strongly agree (5). The first part consists of 4 demographic items, the second part consists of 5 dimensions of service quality items, and the last part consists of 10 items regarding customer satisfaction. The data were collected and analysed using SPSS version 27 and descriptive analyses were conducted to analyse the demographic and element of each dimension. Finally, Pearson correlation and multi regression were run to determine the impacts between service quality dimensions and student satisfaction.

5. Result

5.1 Demographic Analysis

Table 5.1 shows the demographic characteristics of the respondents. A total of 379 respondents participated and completed the questionnaire. All 379 questionnaires were returned and found valid for analysis, hence accounting for a 100% response rate. In terms of gender composition, 54.9% are male and 45.1% are female. In terms of age composition, the respondents were mainly 16 to 18 years old (22.4%), 19 to 21 years old (35.4%), 22 to 24 years old (24.3%) and over 25 years old (17.9%). From the perspective of study time composition, 34.8% of the respondents are in their first grade, 32.7% of the respondents are in their second year, and 32.5% of the respondents are in their third year. Finally, regarding project-related questions, 41.4% were taking certificates, 25.9% had diplomas, and 32.7% had degrees.

Table 1. Demographic Characteristic of Respondent (N=379)

Characteristics		Frequency	Percentage(%)
Gender	Male	208	54.9
	Female	171	45.1
Age	16 To18	85	22.4
	19 To 21	134	35.4
	22 To 24	92	24.3
	More Than 25	68	17.9
Year	Year 1	132	34.8
	Year 2	124	32.7
	Year 3	123	32.5
	Total	379	100
Program	Certificate	157	41.4
	Diploma	98	25.9
	Degree	124	32.7
	Total	379	100.0

5.2 Reliability Quality Dimension

Eight questions in Table 2 were asked on the 5-point Likert scale to measure the reliability. The overall statement shows that the average reliability is in the range of 3.73 to 3.84. The respondents mostly agreed that the college does its best to help students who are in need, hence it indicates that the college is reliable (M - 3.84, SD-1.212). The college performing the service right the first time is also an important behaviour to demonstrate that it is reliable (M - 3.80, SD-1.124). Other items that indicate reliability are as follows; the teachers conduct timely care about students' learning progress, the college provides its service as indicated, students are guaranteed to be safe in the college, the teachers accurately evaluate the learning situation of students, the college solves students' problems within a limited time frame, the teaching progress of the college follows the stated structure accordingly (M - 3.79, SD-1.239; M - 3.78, SD-1.189; M - 3.78, SD-1.203; M - 3.77, SD-1.223; M - 3.75, SD-1.216; M - 3.73, SD-1.253) respectively. It can be concluded that the college does its best to help students who are in need is critical to reflect reliability.

Table 2. Items of Reliability

Items	N	Mean	Std. Deviation
1.The college provides its service as indicated.	379	3.78	1.189
2.The college does its best to help students who are in need.	379	3.84	1.212
3.The college solve students' problems within a limited time frame.	379	3.75	1.216
4.The teachers conduct timely care about students' learning progress.	379	3.79	1.239
5.The teachers accurately evaluate the learning situation of students.	379	3.77	1.223
6.Students are guaranteed to be safe in the college.	379	3.78	1.203
7.The teaching progress of the college follows the stated structure accordingly.	379	3.73	1.253
8.The college performs the service right the first time.	379	3.80	1.124

5.3 Responsiveness Quality Dimension

Eight questions on responsiveness quality dimensions were asked and the results are shown in Table 5.3. The overall statement shows that on average, the responsiveness quality dimension is in the range of 3.72 to 3.84. In general, students are happy with the fast responsiveness of the college, which is the most important indicator that reflects responsiveness (M=3.84, SD=1.189). In addition, other items that affect responsiveness are as follows; the college responds within the time as indicated, the college provides prompt service, the college responds timely to inquiries from relevant departments of the college, the college actively responds to demands of students, the college is always willing to serve and help students within the time frame, the college adjusts relevant teaching arrangements promptly, and the college provides services to students on time when they are in need (M = 3.80, SD = 1.185; M = 3.80, SD = 1.247; M = 3.79, SD = 1.197; M = 3.78, SD = 1.228; M = 3.76, SD = 1.229; M = 3.75, SD = 1.204; M = 3.72, SD = 1.251) respectively. These results show that all eight items have an impact on responsiveness. Among these, students' satisfaction with the school's responsiveness is particularly important to reflect the school's quality dimension in this matter.

Table 3. Items of Responsiveness

Items	N	Mean	Std. Deviation
1. The college provides services to students on time when they are in need.	379	3.72	1.251
2. The college provides prompt service.	379	3.80	1.247
3. The college is always willing to serve and help students within the time frame.	379	3.76	1.229
4. The college response timely to inquiries from relevant departments of the college.	379	3.79	1.197
5. The college adjusts relevant teaching arrangements in a timely manner.	379	3.75	1.204
6. The college provides response within the time as indicated.	379	3.80	1.185
7. The college actively responds to demands of students.	379	3.78	1.228
8. I am happy with the fast responsiveness of the college.	379	3.84	1.189

5.4 Assurance Quality Dimension

Table 4 shows the results of the nine-item questions on the assurance quality dimension. Overall, the average range of assurance quality representation was 3.73 to 3.81. The majority of respondents believe that it is very important for students to feel safe dealing with the college (M - 3.81, SD - 1.173). This element reflects the embodiment of school assurance. In addition, the restaurant of the college has a good environment, and a situation that the staff instilling confidence in students also has a very important impact (M - 3.80, SD - 1.203; M - 3.80, SD - 1.235). Furthermore, the respondents' confidence that the maintenance of classroom multimedia equipment of the college is timely affects the assurance quality dimension too (M - 3.79, SD - 1.238). Other results are as follows; the college provides adequate hot water supply in the dormitories (M - 3.78, SD - 1.146), the staff of the college is trustworthy (M - 3.77, SD - 1.162), the restaurant of the college is hygienic (M - 3.77, SD - 1.282), students receive sufficient support from the college (M - 3.74, SD - 1.169), and the restaurant of the college has sufficient disinfection facilities (M - 3.73, SD - 1.200). It can be seen that initiatives concerning college restaurants, hot water in student dormitories, multimedia in college classrooms, and other equipment and facilities have a crucial impact on assurance.

Table 4. Items of Assurance

Items	N	Mean	Std. Deviation
1. I feel safe dealing with the college.	379	3.81	1.173
2. The staff instill confidence in me.	379	3.80	1.235
3. I receive sufficient support from the college.	379	3.74	1.169
4. The maintenance of classroom multimedia equipment of the college is timely.	379	3.79	1.238
5. The restaurant of the college has sufficient disinfection facilities.	379	3.73	1.200
6. The restaurant of the college is hygienic.	379	3.77	1.282

5.5 Empathy Quality Dimension

Table 5 shows the results of the empathy quality dimension. On the whole, the items indicate that the empathy dimension is in the average range of 3.71 to 3.82. The respondents agreed that empathy is influenced by the college in the following matters; paying attention to the family situation of students, the college provideing personalised services for students, the college assisting students with learning difficulties, the teachers of the college understanding students' needs, the teacher's empathy made students feel satisfied about the college, the college considers many things from the perspective of students, the college understands the personal situation of students, and the college operates at convenient hour (M - 3.82, SD - 1.183; M - 3.80, SD - 1.203; M - 3.79, SD - 1.212; M - 3.77, SD - 1.145; M - 3.77, SD - 1.145; M - 3.74, SD - 1.171; M - 3.73, SD - 1.185; M - 3.71, SD - 1.226) respectively. It can be summarised that paying attention to students' needs, and other aspects are key factors in measuring the empathy quality dimension.

Table 5. Items of Emphy

Items	N	Mean	Std. Deviation
1. The college provides personalised services for students.	379	3.80	1.203
2. The teachers of the college understand students' needs.	379	3.77	1.145
3. The college considers many things from the perspective of students.	379	3.74	1.171
4. The college understands the personal situation of students.	379	3.73	1.185
5. The college can assist students with learning difficulties.	379	3.79	1.212
6. The teacher's empathy made me satisfied about the college.	379	3.77	1.145
7. The college operates at convenient hour.	379	3.71	1.226
8. The college pays attention to the family situation of students.	379	3.82	1.183

5.6 Tangible Quality Diemension

Table 5.6 shows the results on tangible quality dimensions, and overall, the items indicate that tangible quality is in the average range of 3.70 to 3.79. The respondents agreed that tangible quality is influenced by the service staff being very polite, the facilities of the college and that they are modern, the attractiveness of the electronic reading room equipment, visual appeal of the college cafeteria, modern looking equipment, easy transportation on campus, and the attractiveness of the college dormitory facilities (M – 3.79, SD – 1.177; M – 3.79, SD – 1.176; M – 3.78, SD – 1.198; M – 3.74, SD – 1.197; M – 3.74, SD – 1.221; M – 3.73, SD – 1.206; M – 3.71, SD – 1.253; M – 3.70, SD – 1.238) respectively. From the above, the key factors to ensure that the college has a tangible quality dimension is that they provide various equipment and facilities that satisfy students and improve the service level of service staff.

Table 6. Items of Tangible

Items	N	Mean	Std. Deviation
1.The facilities of the college are modern.	379	3.78	1.198
2.The classrooms of the college have modern looking equipment.	379	3.73	1.206
3.The college dormitory facilities are attractive.	379	3.70	1.238
4.Electronic reading room equipment in the college is attractive.	379	3.74	1.197
5.The service staff are very polite.	379	3.79	1.177
6.The transportation on campus is easy to ride.	379	3.71	1.253
7.The college cafeteria facilities are visually appealing.	379	3.74	1.221
8.I am satisfied with the facilities of the college.	379	3.79	1.176

5.7 Satisfaction

Table 7 shows the results of customer satisfaction indicating the average range of 3.69 to 3.78. The respondents agreed that customer satisfaction is influenced by students if they are satisfied with the college course structure, college teaching method, college living environment, college library, and the professional competency of the teachers. However, students are not satisfied with the employment opportunities of the college, teaching facilities, and the services provided by the college. Nevertheless, students believe that the values of the services provided exceed their expectation and hence they would recommend the college to their friends (M –3.78, SD –1.206; M –3.78, SD –1.203; M –3.78, SD –1.152; M –3.77, SD –1.268; M –3.77, SD –1.186; M –3.76, SD –1.235; M –3.76, SD –1.234; M –3.74, SD

–1.183; M=3.70, SD =1.251; M=3.69, SD=1.201) respectively. From the above, the professional ability of college teachers, teaching methods, teaching facilities, library, course structure, and service value.

Table 7. Items of satisfaction

Items	N	Mean	Std. Deviation
1.I am satisfied with the professional competency of the teachers in the college.	379	3.76	1.234
2.I am satisfied with the college teaching method.	379	3.78	1.152
3.I am not satisfied with the college teaching facilities.	379	3.77	1.186
4.I am satisfied with the college library.	379	3.76	1.235
5.I am satisfied with the college course structure.	379	3.78	1.206
6.I believe the values of the services provided exceed my expectation.	379	3.70	1.251
7.I am not satisfied with the employment opportunities of the college.	379	3.78	1.203
8.I am satisfied with the living environment in the college.	379	3.77	1.268
9.I am not satisfied with the services provided by the college.	379	3.74	1.183
10.I would recommend the college to my friends.	379	3.69	1.201

5.8 Pearson Correlation Analysis

To understand the correlation between recruitment practices and talent management, the Pearson correlation coefficients were calculated. A Pearson correlation coefficient test was performed to analyse the relationship between the variables. A rule of thumb by Schober et al. (2018) was used as a guideline to interpret the strength of these relationships, as presented in Table 8

Table 8. Pearson Correlation Coefficient Rule of Thumb

Observed Correlation Coefficient	Interpretation
0.00–0.10	Negligible correlation
0.10–0.39	Weak correlation
0.40–0.69	Moderate correlation
0.70–0.89	Strong correlation
0.90–1.00	Very strong correlation

Source: Schober *et al.* (2018)

Table 9 shows the results of the correlation test on the service dimension quality. The results show a significant positive correlation between the tangible quality dimension, and customer satisfaction ($P < 0.000$), reliability quality dimension, and customer satisfaction ($P < 0.000$), responsiveness quality dimension, and customer satisfaction ($P < 0.000$), empathy quality dimension, and customer satisfaction ($P < 0.000$), and assurance quality dimension, and customer satisfaction ($P < 0.000$).

Table 9. Pearson Correlation Results of Student Satisfaction

Predictors	Correlation	P-value
Tangible	0.967	0.000**
Reliability	0.937	0.000**
Responsiveness	0.946	0.000**
Emphty	0.940	0.000**
Assurance	0.945	0.000**

5.9 Anova and Multiregression analysis

Table 10 shows the Anova that evaluates the impact of various service quality dimensions on customer satisfaction. The model includes tangibility, reliability, responsiveness, assurance, and empathy as predictors of satisfaction. The total variance explained by the model, represented by the regression sum of squares, is 368.833. When divided by the regression degrees of freedom (4), this value yields a mean square of 92.208. The F-value, which measures the overall importance of the model, is 1345.347. The significance level is 0.000, indicating that the model is statistically significant at 0.05. These results indicate that the regression model can significantly predict customer satisfaction and that the service quality dimensions together explain a large amount of variance in satisfaction.

Table 10. Anova^a

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	370.164	5	74.033	1136.280	.001b***
Residual	24.302	373	0.065		
Total	394.466	378			

Note: Dependent Variable: Satisfaction

Predictors: (Constant), Tangible, Reliability, Responsiveness, Assurance, Empathy

***Significant at $\alpha=0.05$, 95% Confidence Interval

Table 11 shows that the coefficients indicate that all service quality dimensions (reliability, responsiveness, assurance, empathy, and tangible,) significantly impact student satisfaction and support all hypotheses. The significance values ($p < 0.05$) confirm the statistical significance of these predictors. These results highlight the importance of each service quality dimension in influencing student satisfaction in private higher vocational colleges in Chengdu.

Table 11. Coefficients

Constant	Unstandardised Coefficients	Unstandardised Coefficients	Standardised Coefficients	t	Sig.
Reliability	.109	.045	.111	2.443	0.015
Responsiveness	.238	.046	.245	5.210	0.001
Assurance	.213	.047	.214	4.520	0.001
Empathy	.138	.047	.137	2.934	0.004
Tangible	.287	.044	.287	6.488	0.001

Note: Dependent Variable: Satisfaction

Predictors: (Constant), Tangible, Reliability, Responsiveness, Assurance, Empathy

***Significant at $\alpha=0.05$, 95% Confidence Interval

Table 12 summarises the regression analysis results, providing key statistics for the model. The correlation between the predictors and the dependent variable (satisfaction) is very strong, with an R-value of 0.967. The R Square value is 0.935, meaning that 93.5% of the variance in student enrolment can be explained by the service quality dimensions. These statistics indicate that the service quality dimensions strongly predict student satisfaction, explaining a large proportion of the variance with statistical significance.

Table 12. Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.967 ^a	.935	.934	.26180

Note: Dependent Variable: Satisfaction

Predictors: (Constant), Tangible, Reliability, Responsiveness, Assurance, Empathy

***Significant at $\alpha=0.05$, 95% Confidence Interval

6. Discussion

The findings of this study indicate that there is a significant correlation between the service quality dimension (i.e., reliability, responsiveness, assurance, empathy, and tangible) and student satisfaction in Chengdu. It is believed that the respondents' improving service quality is a self-improvement measure for each vocational college (Du, 2024). According to the results of the Pearson Correlation, service quality dimensions (i.e., reliability, responsiveness, assurance, empathy, and tangible) were found to have a significant positive correlation with student satisfaction. This is illustrated by the results at a P-value of 0.000 which is less than 0.05 and 0.01 (95% and 99% significance levels). The research rejected the null hypothesis that there is no significant correlation between service quality and student satisfaction. Therefore, the research accepted the alternative hypothesis that there is a significant correlation between the service quality dimension and student satisfaction. These research findings are consistent with the study conducted by Cao (2024) and Wang (2024).

Several recommendations can be drawn from this research results. The results suggest that raising the standard of instructors is essential for raising students' academic performance and communication skills. To promote lecturers' empathy for students, lecturers' academic quality can be improved in terms of their communication, and intellectual ability. The college can also offer high-quality programmes and constantly updated course materials. In this regard, recruitment, selection, and training of lecturers must also be implemented appropriately.

Regarding the non-academic elements, the administrative staff members must be more aware of the importance of improving their efficacy and efficiency in record-keeping, communication, attitude modification, and student services. This requires the college to conduct training and development initiatives. To address the reputation issue, it is also necessary to implement several promotional campaigns that are expected to help students develop positive views of the university. In the meantime, the access component needs to be ensured so that all students have direct access to staff members. Higher vocational education institutions should organise regular assessments of student satisfaction with education services. To improve student satisfaction with educational outcomes, managers of Hue University should take measures to improve the quality of the education service process, especially the quality of educational activities.

7. Conclusion

The study on the impact of service quality dimensions on student satisfaction in private higher vocational education in Chengdu has produced important insights that contribute to theoretical understanding and practical application of educational management. The conclusions drawn from the findings highlight the key role of various service quality dimensions (tangible, reliability, responsiveness, assurance, and empathy) in influencing student satisfaction. This study suggests that good service quality will bring satisfaction among students in Chengdu specifically.

This study is without limitations. This research focuses on private higher vocational colleges in Chengdu, Sichuan province; however, whether the findings apply to students in universities and other provinces remains unexplored. Future research could further test the model across students in different universities and different provinces in China. At the same time, this study examined the impact of the service quality dimension among college students in Chengdu using a quantitative method. The interpretation of the results is somewhat restricted. Future research could utilise a mixture of both quantitative and qualitative research methods to generate more insights into the relationships.

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